

Parametric Audio and Video Processing

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Parametric representations of audio and video signals have a long history, and are becoming more important as more comprehensive representations of signals and more flexible rendering and transport are desired. Examples are relatively low bit rate coding of surround audio signals for digital radio or TV, or animations in movies. Another interesting application is a virtual presence scenario, where people can communicate with high quality video and audio in real time. This requires a very low end-to-end delay. An example is Apples Facetime App which is using the MPEG-ELD coder. Another example with an even lower end-to-end delay requirement is musicians playing together over long distances over the internet, for instance with Fraunhofers Ultra Low Delay coder. Source models are also used to separate musical instruments in a mix of instruments, or to model them for music instrument coders, and to model 3-D objects for animated movies. Parametric signal models that are used are filter banks or subband decomposition with specific impulse responses and a more or less sparse time-frequency plane, models to re-generate high frequency components for the so-called Spectral Bandwidth Replication in audio coding, predictive models for speech representation, or spline and elliptic models for the representation of 3D animated models. This talk will give an overview of the applications, the models used in them, and how they are connected.